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**DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000**

ETL

Technical Letter
No. 1110-x-xxx

August 2000

Engineering and Design COMMERCIAL & CIVIL SATELLITE IMAGERY ACQUISITION

1. Purpose

The purpose of this Engineer Technical Letter (ETL) is to describe the process for acquiring commercial imagery within the Corps of Engineers. With an accurate imagery collection program in place, commercial and civil imagery can be acquired quickly, efficiently, and at a minimum cost.

2. Applicability

This ETL applies to all Headquarters United States Army Corps of Engineers (HQUSACE) elements, major subordinate commands, districts, laboratories, and field operating activities having civil works, military construction, and environmental restoration responsibilities. This letter specifically applies to functional areas having responsibility for regulation investigations and studies, planning studies, real estate, emergency operations, and other functions involving the use of commercial satellite imagery. This letter applies to both in-house and contracted efforts. This ETL should be used to evaluate existing imagery collection procedures for suitability

and completeness and to identify unmet imagery collection needs.

3. Discussion

The acquisition of commercial and civil imagery within the Corps of Engineers as well as the rest of the Army is accomplished by the USACE's Engineer Research and Development Center (ERDC)'s - Topographic Engineering Center (TEC). TEC's Commercial & Civil Imagery Office (CCIO) continues to manage a program, established in 1990, dedicated to the efficient research, acquisition, archiving, and distribution of both current and historical imagery and products for the U.S. Army and other customers. The CCIO researches available archives, both government and satellite vendors, places orders, manages funding when needed, tracks acquisition, distributes data to the customer, and ensures data is stored in the National Imagery and Mapping Agency's (NIMA) Commercial Satellite Imagery Library (CSIL), which enables all of the DoD and Title 50 Intelligence community to have access to the data, providing the correct licensing has been purchased. The Title 50 community

DRAFT

consists of the Office of the Director of Central Intelligence, Central Intelligence Agency, National Security Agency, Defense Intelligence Agency, NIMA, the National Reconnaissance Office, other offices within the DoD for the collection of specialized national intelligence through reconnaissance programs; intelligence elements of the Services, the Federal Bureau of Investigation, the Department of Treasury, the Department of Energy, Bureau of Intelligence and Research of the Department of State; such elements of any other department or agency as may be designated by the President, or designated jointly by the Director of Central Intelligence and the head of the department or agency concerned, as an element of the intelligence community. If the imagery is in the CSIL, any Corps activity and their contractor(s) may access it at no cost.

a. Introduction

TEC was designated by the Office of the Assistant Chief of Engineers in 1990 to act as the U.S. Army Commercial & Civil Imagery (C2I) Acquisition Program Manager. This action was designed to preclude Army agencies/organizations from duplicating commercial and civil panchromatic and multispectral satellite imagery data purchases. In addition, TEC was designated the repository of selected C2I data pertaining to terrain analysis and water resources operations. This repository contains information to support civil as well as military applications and operations. The

Geospatial Information Division (GID) executes the C2I Program for TEC and the Army. The current revision of Army Regulation 115-11, Geospatial Information and Services strengthens the role of TEC's CCIO as the point of contact for acquisition of commercial imagery in the Army.

b. Development of the CCIO

The CCIO began in 1990 with a single person's focus on educating the soldier on the availability, uses and types of commercial imagery. As Army use of commercial imagery increased and as the number of satellites increased, the CCIO has grown to keep up with the demand. Currently the operation of the CCIO provides around a million dollars of imagery support to its customers, and the CCIO is an active participant in NIMA's Commercial Imagery Strategy.

c. How to Order Commercial Imagery

No imagery shall be purchased from a commercial vendor without first coordinating with the CCIO. Any USACE organization with C2I requirements must forward their C2I requirements to TEC for research, acquisition, and distribution of the data.

Requests for C2I data can be submitted as follows:

- ccio@tec.army.mil
- PHONE 703 428-6909
- FAX 703 428-8176

DRAFT

- ONLINE REQUEST FORM
www.tec.army.mil/forms/csiform1.html)

and should include the following information:

1. Geographic area of interest
(Please provide Upper Left and Lower Right coordinates,
Ex: 27 00 00N 087 00 00W) (and path/row, if known)
2. Acceptable date range for data coverage (example: 5 Jan 99 - 3 Mar 00); cloud cover and quality restrictions
3. Satellite system/sensor

See link below for basic satellite information:

www.tec.army.mil/CCIO/satlink.htm

4. Desired end product (digital or hard copy and preferred media type, e.g., CD-ROM)
5. Point of contact, mailing and electronic address and phone number

d. Purchased Imagery Submission to the CSIL

Commercial satellite imagery purchased for customers by the CCIO is disseminated upon receipt to the requestor as well as to the CSIL. If your organization has SPOT, Landsat, or other commercial imagery not purchased through TEC or obtained from the CSIL, please forward a list of scenes and dates of acquisition to the CCIO for possible

inclusion in the CSIL. This will depend upon date of imagery and whether NIMA will pay the licensing deltas needed for inclusion in the CSIL so DoD/Title 50 users can access it.

e. Frequency of Imagery Collection

Frequency of imagery collection is driven by various options. Cloud cover, revisit time, and angle of collection are several examples of variations in frequency of imagery collection. For example change detection requires data from either different seasons or different dates, whether that is days, weeks, months or years. The variation of land use, land cover and an urbanization increase or decrease is important information for planners. For more details, refer to

www.tec.army.mil/CCIO/satlink.htm

Several vendors rely on foreign ground stations to obtain data; however, NIMA is striving for imagery receipt within 24 hours of acquisition.

f. Sensor Availability

Commercial imagery users have a sizable number of data choices obtainable for their use. The United States has Landsat 7 as well as other instruments associated with the Earth Observing Program (EOS) with data currently available for use/purchase. Eagle Vision II (EV II) also provides assured receipt of data worldwide due to its deployable nature. Any location within 2200

DRAFT

kilometers of EV II is a possible imaging target. For a complete list of available sensors and their capabilities and benefits, please go to:

www.tec.army.mil/CCIO/satlink.htm

g. Possible Civil Applications

High-resolution commercial imagery, such as Space Imaging's IKONOS, as well as the three other U.S. systems remaining to launch in the 2000/2001 window; Orbimage's Orbview-3 & Orbview-4 and Earthwatch's Quickbird require no special permission for use. There is a high likelihood for utilizing commercial imagery to provide aid in natural disasters since there are no restrictions or sensitivity affecting product distribution, given proper licensing is purchased. The high frequency of repeat coverage is a useful tool within the Corps and Army.

The high-resolution imagery can provide a backdrop for GIS vector data. Flood control efforts in the Corps and Army can utilize commercial imagery for accurately capturing flood boundaries, tracking erosion/levee damage, documenting levee repairs, providing model validation, and providing a graphic context.

Coastal storm damage assessments can be enhanced by the use of commercial imagery for such things as: pre- and post-storm beach and barrier island morphology and comparisons, the detection of erosion and sedimentation, and the detection of sediment plumes.

Commercial imagery can be used as a tool to aid in the analysis of non-flood disasters such as the determination of severe, moderate and light damage zones, impassable roads, model input, debris, ice and water, roofing, change detection, identification of missing roofs, and damage to critical facilities and infrastructure, bridges, power plants, and power transmission towers.

Other potential uses include project use counts such as the number of cars, boats, and beach use; as well as work for others such as emergency management systems, risk analysis/disaster management and hazardous, toxic and radioactive waste (HTRW) management.

h. Summary

The CCIO is well established, and has acquired a great deal of imagery in support of the topographic, intelligence, and space communities. The CCIO acts as the acquisition agent in the Army for commercial and civil imagery, and ensures that imagery is purchased only once, thus conserving precious resources for the Army. To contact TEC's CCIO, please try one of the following methods:

www.tec.army.mil/CCIO/satlink.htm

ccio@tec.army.mil

Team Leader- Mary Pat Santoro
msantoro@tec.army.mil 703-428-6909 (DSN 328)

Fax 703-428-8176

Secure Fax 703-428-6772

DRAFT

Team Members -

Karen Moore

kmoore@tec.army.mil

703-428-6263

Alana Hubbard

ahubbard@tec.army.mil

703-428-6717